

Non-technical Abstract

Many types of cancer are resistant to available medical treatments including drugs, chemotherapy, surgery and radiation, alone or in combinations. The intent of the proposed treatment is to evaluate the clinical response to the expansion of lymphocytes which respond specifically to tumor antigens. In this study, an experimental procedure will be conducted which will attempt to fight cancer by injecting genetic material, DNA, directly into solid tumors. The DNA is mixed with lipid to form a complex, and this complex will be injected into the tumor. DNA will be taken into cells causing them to produce and secrete a protein that stimulates the immune system. This protein, called Interleukin-2 (IL-2), causes cells which secrete it to recruit immune cells to the tumor site, which may lead to tumor reduction or eradication.

The IL-2 protein has been approved for cancer therapy in renal cell carcinoma, and is undergoing advanced clinical evaluation for treatment of melanoma. The proposed study targets production of IL-2 directly in the tumor to attract and stimulate the immune response required for tumor regression. In this study, we will attempt to learn the range of safe and effective doses of the DNA/lipid complex. Increasing amounts of this complex will be administered in patients with a variety of solid tumors or lymphomas. If no side effects are observed, the procedure will be repeated up to six times. This treatment may provide a potent therapeutic effect in cancer, based on a well-characterized protein in a potentially toxicity-free delivery mechanism.